

IN THE CLAIMS

1. (Currently Amended) A method for assigning management responsibility to agents for management of manageable entities comprising:

retrieving access data from a repository, the access data enabling an agent to gain management access to at least one manageable entity;

~~prior to retrieving the access data, storing the access data in the repository, the repository being a secure repository, and the access data omitted from persistent storage in a local datastore of a computer system operating the agents;~~

transmitting a discovery message to an agent, the discovery message including the access data corresponding to manageable entities accessible by the agent according to a type of the manageable entity; and

receiving, from the agent, a manageable entity list message indicative of manageable entities manageable by the agent based on the access data transmitted to the agent, the manageable entity list message operable for determining assignment of management responsibility to the agent for at least one manageable entity of the manageable entities indicated in the manageable entity list message, further comprising:

receiving, from a user, an indication of a new access data parameter for a manageable entity type;

adding the received access data to the repository;

sending discovery messages corresponding to the access data to each of the agents operable to manage the type of manageable entity corresponding to the added access data parameter; and

receiving the manageable entity list corresponding to the sent discovery message, the manageable entity list operable to enable adding the newly added manageable entity to a management correlation, and further operable to enable reprocessing the management correlation, according to agent allocation logic, to select a particular agent as the primary agent for the newly added manageable entities.

2. (Canceled)
3. (Original) The method of claim 1 further comprising building the discovery message based on the access data.
4. (Original) The method of claim 1 wherein the access data includes access control information operable to permit access based on the information in the access control information.
5. (Previously Presented) The method of claim 1 wherein the access data includes location information operable for locating manageable entities of a storage area network in communication with the agent, and the determining a primary agent for undertaking the management responsibility further comprises enabling the agent for discoverable access to the manageable entity.
6. (Original) The method of claim 1 further comprising encrypting the access data in the discovery message, the encrypting operable to deter unintended determination of the access data.
7. (Original) The method of claim 1 further comprising, prior to retrieving the access data, receiving an initialization message from at least one of the agents, the initialization message indicative of the readiness of the agent and a type of manageable entity which the agent is operable to manage.
8. (Original) The method of claim 1 wherein the access data further comprises enumeration of discoverable parameters, including at least one of passwords, network address, control parameters and 3<sup>rd</sup> party software installation paths.

9. (Original) The method of claim 1 wherein retrieving from the repository further comprises querying a component table of the repository to determine access data corresponding to the type of manageable entities the agent is operable to manage.

10. (Original) The method of claim 9 wherein retrieving from the repository further comprises, based on the determined access data, for each of the type of configured manageable entities:

indexing, via the type of the configured manageable entity, into a manageable entity parameter store;

retrieving the access data corresponding to the type of manageable entity;  
and

generating the discovery message from the retrieved access data.

11. (Original) The method of claim 1 wherein the manageable entity list message further comprises, for each of the configured types of manageable entities for which access data was found:

an indicator of each of the agents operable to manage the configured manageable entity type.

12. (Original) The method of claim 1 wherein storing the access data in the repository further comprises removing the access data from alternate, distributed datastores and consolidating the access data in the repository.

13. (Canceled)

14. (Currently Amended) The method of claim ~~43~~1 further comprising receiving the indication of the additional access data via a GUI screen via a GUI application operable to monitor and control the assignment of an agent to a manageable entity.

15. (Currently Amended) A method for transmitting access data to agents responsible for managing manageable entities comprising:

retrieving access data from a repository, the access data suitable for locating the manageable entities manageable by each of the agents;

prior to retrieving the access data, storing the access data in the repository, the repository being a secure repository, and the access data omitted from persistent storage in a local datastore of a computer system operating the agents;

transmitting, from the server, a discovery message having discovery information to an agent, the discovery message including access data corresponding to a type of the manageable entities accessible by the agent; and

receiving, from the agent, object information indicative of manageable entities manageable by the agent, further comprising:

receiving, from a user, an indication of a new access data parameter for a manageable entity type;

adding the received access data to the repository;

sending discovery messages corresponding to the access data to each of the agents operable to manage the type of manageable entity corresponding to the added access data parameter; and

receiving the manageable entity list corresponding to the sent discovery message, the manageable entity list operable to enable adding the newly added manageable entity to a management correlation, and further operable to enable reprocessing the management correlation, according to agent allocation logic, to select a particular agent as the primary agent for the newly added manageable entities.

16. (Currently Amended) A data communications device for assigning management responsibility to agents for management of manageable entities comprising:

an access data manager in a server for retrieving access data from a repository, the access data enabling an agent to gain management access to at least one manageable entity, the access data manager for transmitting a discovery message to an agent,

the discovery message including the access data corresponding to manageable entities accessible by the agent according to a type of the entity, the agent responsive to the discovery message for generating a manageable entity list message indicative of manageable entities manageable by the agent based on the access data transmitted to the agent,

the manageable entity list message further enabling assignment of management responsibility to the agent for at least one manageable entity of the manageable entities indicated in the manageable entity list message, ~~the access data manager further operable to:~~

~~index, via the type of the manageable entity, into a manageable entity type parameter store;~~

~~retrieve the access data corresponding to the type of manageable entity; and~~

~~generate the discovery message from the retrieved access data~~the access data manager further operable to:

receive, from a user, an indication of an additional access data parameter for a manageable entity type;

add the received access data to the repository;

send discovery messages corresponding to the additional access data to each of the agents operable to manage the type of manageable entity corresponding to the additional access data; and

receive the manageable entity list corresponding to the sent discovery message, the manageable entity list operable for enabling addition of the newly added access data to a management correlation indicative of each of the agents operable to manage each of the types of configured manageable entities, and further operable for enabling

reprocessing of the management correlation, according to agent allocation logic, to select a particular agent as the primary agent based on the additional access data.

17. (Original) The data communications device of claim 16 wherein the server is further operable to:

identify, for a particular manageable entity, a set of agents operable to manage the manageable entity; and

determine, from the identified set of agents, a primary agent operable for managing the manageable entity.

18. (Original) The data communications device of claim 17 wherein the server is operable to selectively transmit a designate primary agent message from the server to the agent, the primary agent message indicative of responsibility for managing the manageable entity, and further operable to enable the agent to discover storage characteristics of the manageable entity.

19. (Original) The data communications device of claim 16 wherein the access data manager is further operable to, prior to retrieving the access data, store the access data in the repository, the repository being a secure repository, and the access data omitted from a local datastore corresponding to the agents.

20. (Original) The data communications device of claim 16 wherein the access data manager is further operable to build the discovery message based on the access data.

21. (Original) The data communications device of claim 16 wherein the access data includes access control information operable to permit access based on the information in the access control information.

22. (Original) The data communications device of claim 16 wherein the access data includes identification information operable for identifying manageable entities in communication with the agent, the access data further operable to enable the agent for discoverable access to the manageable entity.

23. (Original) The data communications device of claim 16 further comprising encrypting the access data in the discovery message, the encrypting operable to deter unintended determination of the access data.

24. (Original) The data communications device of claim 16 wherein the access data manager is operable to, prior to retrieving the access data, receive an initialization message from at least one of the agents, the initialization message indicative of the readiness of the agent and a type of manageable entity which the agent is operable to manage.

25. (Original) The data communications device of claim 16 wherein the access data further comprises enumeration of discoverable parameters, including at least one of passwords, network address, control parameters and 3<sup>rd</sup> party software installation paths.

26. (Original) The data communications device of claim 16 wherein the access data manager is further operable to, prior to retrieving the access data, query a component table of the repository to determine the type of manageable entities the agent is operable to manage.

27. (Canceled)

28. (Original) The data communications device of claim 16 wherein the manageable entity list message further comprises, for each of the configured manageable entities for which access data was found:

an indicator of access data operable to enable management contact with the configured manageable entity.

29. (Canceled)

30. (Currently Amended) The data communications device of claim 16<sup>29</sup> further comprising a GUI application for receiving the indication of the additional access data, the GUI application operable via a GUI screen to monitor and control the assignment of an agent to a manageable entity.

31. (Currently Amended ) A computerized device comprising:  
a display;  
a memory system;  
a processor; and  
an interconnection mechanism connecting the display, the processor and the memory system;

wherein the memory system is encoded with a control center application that when performed on the processor, produces at least one control center process that provides a graphical user interface produced on the display of the computerized device, the graphical user interface allowing a user of the computerized device to monitor and control assigning management responsibility to agents for management of manageable entities in a network, the control center processes performing operations comprising:

retrieving access data from a repository, the access data enabling an agent to gain management access to at least one manageable entity;  
transmitting a discovery message to an agent, the discovery message including the access data corresponding to types of manageable entities accessible by the agent;  
receiving, from the agent, a manageable entity list message indicative of manageable entities manageable by the agent based on the access data



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transmitted to the agent, the manageable entity list message operable for determining assignment of management responsibility to the agent for at least one manageable entity of the manageable entities indicated in the manageable entity list message, retrieving from the repository further comprising, based on the determined access data, for each of the type of configured manageable entities:

indexing, via the type of the configured manageable entity, into a manageable entity parameter store;

retrieving the access data corresponding to the type of manageable entity; and

generating the discovery message from the retrieved access data, further comprising:

receiving, from a user, an indication of a new access data parameter for a manageable entity type;

adding the received access data to the repository;

sending discovery messages corresponding to the access data to each of the agents operable to manage the type of manageable entity corresponding to the added access data parameter; and

receiving the manageable entity list corresponding to the sent discovery message, the manageable entity list operable to enable adding the newly added manageable entity to a management correlation, and further operable to enable reprocessing the management correlation, according to agent allocation logic, to select a particular agent as the primary agent for the newly added manageable entities.

32. (Currently Amended) A computer program product having a computer readable medium operable to store computer program logic embodied in computer program code encoded thereon for assigning management responsibility to agents for management of manageable entities comprising:

computer program code for retrieving access data from a repository, the access data enabling an agent to gain management access to at least one manageable entity, the agent being one of different types of agents in a storage area network (SAN), each of the agents having a type of manageable entity that it is operable to manage;

computer program code for, prior to retrieving the access data, storing the access data in the repository, the repository being a secure repository, and the access data omitted from persistent storage in a local datastore of a computer system operating the agents;

computer program code for transmitting a discovery message to an agent, the discovery message enabling startup of the different types of agents in a storage area network, the discovery message including the access data corresponding to types of manageable entities accessible by the agent;

computer program code for receiving, from the agent, a manageable entity list message indicative of manageable entities manageable by the agent based on the access data transmitted to the agent, the manageable entity list message operable for determining assignment of management responsibility to the agent for at least one manageable entity of the manageable entities indicated in the manageable entity list message.

33. (Currently Amended) A computer instruction set embodied as program code on a computer readable storage medium for assigning management of manageable entities comprising:

program code for retrieving access data from a repository, the access data enabling an agent to gain management access to at least one manageable entity, the agent being one of different types of agents in a storage area network (SAN), each of the agents having a type of manageable entity that it is operable to manage;

program code for, prior to retrieving the access data, storing the access data in the repository, the repository being a secure repository, and the access

data omitted from persistent storage in a local datastore of a computer system operating the agents;

program code for transmitting a discovery message to an agent, the discovery message enabling startup of the different types of agents in a storage area network, the discovery message including the access data corresponding to types of manageable entities accessible by the agent;

program code for receiving, from the agent, a manageable entity list message indicative of manageable entities manageable by the agent based on the access data transmitted to the agent, the manageable entity list message operable for determining assignment of management responsibility to the agent for at least one manageable entity of the manageable entities indicated in the manageable entity list message, retrieving from the repository further comprising, based on the determined access data, for each of the type of configured manageable entities:

indexing, via the type of the configured manageable entity, into a manageable entity parameter store;

retrieving the access data corresponding to the type of manageable entity; and

generating the discovery message from the retrieved access data.

34. (Currently Amended) A data communications device for assigning management responsibility to agents for management of manageable entities comprising:

means for retrieving access data from a repository, the access data enabling an agent to gain management access to at least one manageable entity;

means for, prior to retrieving the access data, storing the access data in the repository, the repository being a secure repository, and the access data omitted from persistent storage in a local datastore of a computer system operating the agents;

means for transmitting a discovery message to an agent, the discovery message including the access data corresponding to types of manageable entities accessible by the agent;

means for receiving, from the agent, a manageable entity list message indicative of manageable entities manageable by the agent based on the access data transmitted to the agent, and the manageable entity list message operable for determining assignment of management responsibility to the agent for at least one manageable entity of the manageable entities indicated in the manageable entity list message, retrieving from the repository further comprising, based on the determined access data, for each of the type of configured manageable entities:

indexing, via the type of the configured manageable entity, into a manageable entity parameter store;

retrieving the access data corresponding to the type of manageable entity; and

generating the discovery message from the retrieved access data, further comprising:

means for receiving, from a user, an indication of a new access data parameter for a manageable entity type;

means for adding the received access data to the repository;

means for sending discovery messages corresponding to the access data to each of the agents operable to manage the type of manageable entity corresponding to the added access data parameter;  
and

means for receiving the manageable entity list corresponding to the sent discovery message, the manageable entity list operable to enable adding the newly added manageable entity to a management correlation, and further operable to enable reprocessing the management correlation, according to agent allocation logic, to select a particular agent as the primary agent for the newly added manageable entities.

35. (Currently Amended) A method for assigning management responsibility to agents in a storage area network for management of manageable entities, the manageable entities including storage objects, network objects, and database objects comprising:

- identifying security sensitive access data stored in distributed local storage at manageable entities in the storage area network;

- moving the access data from the distributed local storage to a common repository having controlled access via a control center application;

- receiving, from the agents, an indicator of a type of manageable entities operable for management by each of the agents;

- identifying, via the control center application and the repository, a set of manageable entity types operable to be managed by that agent type;

- retrieving, via an access data manager in the control center application, the access data from the repository corresponding to the type of manageable entities, the access data enabling an agent to gain management access to at least one manageable entity;

- prior to retrieving the access data, storing the access data in the repository, the repository being a secure repository, and the access data omitted from persistent storage in a local datastore of a computer system operating the agents;

- transmitting a discovery message to an agent, the discovery message including the access data corresponding to the types of manageable entities accessible by the agent;

- receiving, from each of the agents responsive to the discovery message, a manageable entity list message indicative of manageable entities coupled to the agent and manageable by the agent based on the access data transmitted to the agent, a plurality of the manageable entity list messages further operable in aggregate for generating a management correlation indicative of a set of agents operable to manage each of the identified manageable entities, the management correlation for enabling, based on the generated management

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correlation and agent allocation logic operable to optimize allocation of agents, assignment of management responsibility to each of the agents for at least one manageable entity of the manageable entities indicated in the plurality of manageable entity list messages, further comprising:

receiving, from a user, an indication of a new access data

parameter for a manageable entity type;

adding the received access data to the repository;

sending discovery messages corresponding to the access data to

each of the agents operable to manage the type of manageable entity

corresponding to the added access data parameter; and

receiving the manageable entity list corresponding to the sent discovery message, the manageable entity list operable to enable adding the newly added manageable entity to the management correlation, and further operable to enable reprocessing the management correlation, according to agent allocation logic, to select a particular agent as the primary agent for the newly added manageable entities.

36. (New) The method of claim 1 further comprising: prior to retrieving the access data, storing the access data in the repository, the repository being a secure repository, and the access data omitted from persistent storage in a local datastore of a computer system operating the agents.

37. (New) The method of claim 16 wherein the access data manager is further operable to:

index, via the type of the manageable entity, into a manageable entity type parameter store;

retrieve the access data corresponding to the type of manageable entity; and

generate the discovery message from the retrieved access data.